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## HUBBLE SPACE TELESCOPE (HST)

ND 73680/  
NC 999967

(Emergency Support)

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LV/Range: STS/ETR

Launch Date: April 24, 1990  
Projected SC Life/DSN Support: 15 years

Project Responsibility: Marshall Space Flight Center/  
Goddard Space Flight Center

Source: NSP March 1983  
Sponsor: OSO

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### A. MISSION DESCRIPTION

The Space Telescope is a national facility. It consists of a 2.4-m aperture Ritchey-Chretien cassegrain telescope weighing approximately 9525 kg with various energy detectors designed for the observation of IR, visible, and UV wavelengths (0.12 to 1000 microns).

### B. FLIGHT PROFILE

The space telescope was deployed into a 28.5-degree inclination, circular orbit, which permits a mission lifetime of 15 years. Orbit: Decaying circular between 594 and 400 km x 28.5 deg; period = 95 minutes.

## C. COVERAGE

## 1. Coverage Goals

The DSN is responsible for providing contingency support for the space telescope in the event a Tracking and Data Relay Satellite System (TDRSS) or spacecraft failure prevents communications via that link.

## 2. Network Support

The support provided by the DSN is indicated in the following table:

<u>System</u>	<u>Goldstone</u>	<u>Canberra</u>	<u>Madrid</u>
	12 14 15 16	42 43 45 46	61 63 66
S-band TLM	E	E	E
S-band CMD	E	E	E
S-band TRK	E	E	E

NOTE: P = Prime

E = Emergency support

## D. FREQUENCY ASSIGNMENTS

Frequencies are allocated according to the following table:

<u>System</u>	<u>Uplink (MHz)</u>	<u>Downlink (MHz)</u>	<u>Polarization</u>
S-band TLM	--	2287.5	LCP
S-band CMD	2106.4063	--	LCP
S-band TRK	2106.4063	2287.5	LCP

## E. SUPPORT PARAMETERS

The support parameters for the Telemetry, Command, and Support Systems are listed below:

## (1) Telemetry

Data Streams	1
Format	PCM/PM BiØ-L
Subcarrier Frequency	None
Bit Rate	Engineering: 500 b/s, 4 kb/s, 32 kb/s, 1024 kb/s
Recording	
. Analog	Required

## (2) Command

Format	PCM/PSK/PM
Bit Rate	1 kb/s
Subcarrier Frequency	16 kHz

## (3) Support

Uplink Power	TBD
Antenna Rate	Moderate
Antenna Angle Data	Required
Antenna Autotrack	Required
Doppler Rates	TBD
Range Format	TBD
Recording	
. Analog	Required
. Digital	Not required

## F. TRACKING SUPPORT RESPONSIBILITY

The allocation of responsibilities for tracking support is listed in the following table:

<u>Mission Phase</u>	<u>Support Responsibility</u>
STS Launch	TDRSS
Earth Orbit	TDRSS
Contingency Support	DSN

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